

Influence of Text Length on Reading Fluency of Intermediate EFL Students

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This study utilized a quasi-experimental research design to determine students' gains in reading fluency while maintaining a reasonable level of reading comprehension when reading texts of different lengths over a period of 10 weeks. Analysis of the results revealed that Treatment Group 1 ($n = 61$), who used 400-word texts, improved their reading fluency by an average of 37.9 wpm (33.4%) and Treatment Group 2 ($n = 53$), who read 200-word texts, increased by an average of 14.9 wpm (13.3%). Furthermore, Treatment Group 1 saw a gain in comprehension of an average of 11.4%, whereas Treatment Group 2 saw a gain of 11.3%, and the control group ($n = 36$) showed an average of 5.7 wpm (5.8%) change in reading fluency with an average drop in reading comprehension by 1.9%. The results of this study suggest that text length has an influence on L2 reading fluency for intermediate EFL students.

本研究の目的は、ある程度の長さの文章を一定期間続けて読むことで、内容理解に影響することなく、読みの速さが向上するかを検証することである。400字の文章を読む実験群1 ($n = 61$)、200字の文章を読む実験群2 ($n = 53$)、何も指導を受けない統制群 ($n = 36$) を設け、調査をした。10週間後にその効果を検証した結果、読む速さ(1分間に読める語数)が実験群1 (400字) で37.9語/分(33.4%)、実験群2 (200字) で14.9語/分 (13.3%) となり、いずれも伸びが見られた。また、内容理解の正確さについては前者が平均11.4%、後者が11.3%の伸びを示した。統制群については、読みの速さに平均5.7語/分 (5.8%) の伸びがあったものの、正確さは1.9%の減退が確認された。この結果は、中級レベルの英語学習者(EFL)にとって文章の長さが読みの速さに影響することを示唆している。

THE OBJECTIVE of this paper is to examine the impact of timed reading materials in the intermediate Japanese EFL classroom as a means of improving reading fluency. To be considered a fluent reader, one must be able to read with ease and accuracy. This involves a long incremental process, with increased text comprehension as one of the expected outcomes (Grabe, 2009, 2010). To understand what reading fluency encompasses, factors such as cognitive velocity (Carver, 1992) and automaticity (LaBerge & Samuels, 1974) need to be acknowledged. Cognitive velocity involves the speed at which the mind operates, whereas automaticity is the attention given to items of information for processing. For example, if learners mainly focus their attention on word recognition, overall comprehension of the text becomes more difficult. Therefore, when words are recognized automatically, cognitive load (Bygate, Skehan, & Swain, 2001) can be reduced during reading tasks, and attention can be given to global comprehension.

The difficulty of being a fluent reader, however, is magnified when the student is reading in a foreign language. Many EFL students struggle as they read word by word and check unfamiliar words in a dictionary as part of their bottom-up processing strategies (Coady, 1979). Nation (2009) advocates a 250-words-per-minute (wpm) reading objective for L2 learners. In order for students to become fluent readers, they should progress through bottom-up processing strategies and overcome habits that impede their reading development.

One way that reading teachers can help their students modify their habits is to encourage them to read quickly, as being able to read quickly is essential to being a fluent reader. To increase reading speed, extensive reading, repeated reading, and speed reading are seen as the principle approaches (Macalister, 2010). For extensive reading instruction, a large quantity of easy texts, such as graded readers, are read for enjoyment and to develop general reading skills. In repeated reading, learners read the same text many times until all vocabulary and grammar structures have become familiar. In the speed reading classroom, there are two main speed reading exercises intended for improving reading speed: paced reading and timed reading. In paced reading, the teacher gives students a fixed amount of time to read the text so that the students read at a specific rate. In timed reading, the students try to read the text as quickly as possible while maintaining accuracy and comprehension. Timed reading texts are of equal length and equal lexical difficulty and are practiced over a period of many weeks or months to increase fluency. Therefore, timed reading can be described as a technique primarily used to develop students' reading fluency by increasing reading speed while maintaining a reasonable level of accuracy and comprehension (Nation, 2005, 2007).

Due to the limited amount of classroom time which can be allowed for reading activities in compulsory English classes, it is unlikely that either paced or timed reading activities can be

used. As a result, it is essential to choose the most time-efficient activity. In order to determine which activity was more efficient, Champeau de Lopez (1996) conducted a series of studies on paced and timed reading with intermediate EFL university students in Venezuela. For these studies, original texts of various lengths (176 to 713 words) were prepared. She concluded that with the use of paced and timed reading training it was possible to increase the reading speed of intermediate level EFL students. She also concluded that timed reading was superior to paced reading because the reading speed of the timed group increased by an average of 52 wpm (52%) whereas the paced reading group increased by an average of 29 wpm (28%).

Rather than comparing paced and timed reading, most studies have focused on timed reading. In a 9-week study by Chung and Nation (2006) with 49 Korean university students, students read 23 texts of 550 words. Chung and Nation found that most of the students benefited from timed reading activities and that most gains were realized during the first 10 texts. Similarly, the results of a 13-week study with 84 Taiwanese college students using 300-word texts (Chang, 2010) showed that timed reading improved both reading speed and comprehension. She also found that students who read more texts improved the most. When 30 texts were read, students improved their reading speed by an average of 20 wpm; 30-35 texts resulted in an average improvement of 24 wpm; and more than 36 texts increased speed by an average of 41 wpm. Using 400-word texts with Japanese junior college students in two studies, Utsu found that students increased their reading speeds from 78 to 92 wpm (18%) in Study One (2004), and from 91 to 132 wpm (45%) in Study Two (2005). In an 11-week study with 400-word texts at a Japanese university, Crawford (2008) found that both slow and fast readers benefit from speed reading.

An exploratory study researching the general effects of timed reading with intermediate Japanese EFL university students was

carried out by Taferner (2012). In this study, the materials and approach developed by Quinn, Nation, and Millett (2007) were utilized. This study was conducted to determine if timed reading was an appropriate way to facilitate reading fluency, and to probe for ways to modify the materials or approach to improve speed reading pedagogy within the university EFL context in Japan. Analysis of the participants' reading speeds found reading rates and comprehension scores fluctuated throughout the period of the study. Results from the questionnaire administered after the final reading determined that participants liked the speed reading materials and wanted to continue using them in the future. The open-ended questions, however, revealed that many students thought that the readings were too long and they were confused about how to increase reading speed while still maintaining comprehension.

From these studies it is clear that the manner in which timed reading tasks are designed can determine the level of success for learners (Bygate, Skehan, & Swain, 2001). Features such as vocabulary level, text length, and student proficiency are all important factors when determining the correct reading materials to use. Therefore, creating timed reading materials remains a difficult task of balancing many of these aspects to produce an effective outcome. Since previous research has not specifically compared timed reading texts of different lengths, it is the objective of this study to test the effects of text length on reading fluency and comprehension by addressing the following research questions:

1. How does text length influence reading fluency during timed reading?
2. How does timed reading influence reading comprehension?

Methodology

Participants

The 150 participants in this study were university students enrolled in English language programs at three universities in the Kanto area. These students, who majored in a variety of subjects, including business, economics, science, and social sciences, were enrolled in intermediate level English reading classes. The participants were divided into the following three groups: Treatment Group 1 ($n = 61$), Treatment Group 2 ($n = 53$), and a control group ($n = 36$). To minimize confounding factors in the study, no additional reading fluency activities were used with any of the groups.

Task Design

For this study, *New Zealand Speed Readings For ESL Learners – Book One* (Millett, 2005) was used. This book contains 20 texts exactly 400 words in length that are written using only the first 2,000 words of the *General Service List* (West, 1953). For each text, there are 10 comprehension questions. In addition to limiting vocabulary to the first 2,000 words (except for the names of countries and animals), grammar is also controlled so as to maintain the focus on increasing reading speed. In order to meet this objective, students should try to read as quickly as possible while maintaining a minimum score of 70% on the comprehension questions.

For this investigation, 10 texts were selected from the book. For the pretest, the students read the *New Zealand Facts and Figures* text, and for the posttest they read the *Wellington Street Car* text. During the study, Treatment Group 1 read eight 400-word texts (Appendix A) and answered 10 comprehension questions while Treatment Group 2 read eight 200-word texts (Appendix B) and answered five comprehension questions. Both groups read the same texts, but Treatment Group 2 read a truncated

version of the texts. The texts were truncated at exactly at the 200-word mark, as this was the easiest way to avoid potential confounding factors by using other texts, and to ensure all the groups experienced the same readings. A possible weak point of this design is that Treatment Group 1 may have performed better than the other groups on the posttest because of the practice effect of reading 400-word texts.

Data Collection

This study used a quasi-experimental research design to determine students' gains in reading fluency while maintaining reading comprehension when reading texts of different lengths over a period of 10 weeks. In the first week of the study, a receptive vocabulary test (adapted from Laufer & Nation, n.d.) was administered to evaluate receptive vocabulary knowledge and to determine if the timed reading material was at an appropriate level for the participants. This study was conducted in reading classrooms where the emphasis was on reading practice and comprehension exercises.

The participants in the treatment groups experienced timed reading using either ten 200-word or ten 400-word texts, to test the effects of text length on reading fluency and accuracy. A control group was included to measure the effect of these reading materials on students' fluency while maintaining reading accuracy. Treatment Group 1 had 400-word readings, Treatment Group 2 had 200-word readings, and the control group had only the pretest and posttest 400-word readings.

To implement the timed reading tasks, all sessions were conducted following the same procedure. First, a one-page handout with the timed reading text was distributed to the participants. The front side included the reading text and the backside had the comprehension questions. The instructor then waited until all students were ready to proceed. When they were ready,

all students began reading at the same time. When students finished reading the text they recorded their reading time from the board onto their bilingual timed reading record sheet (see Appendix C). Next, the students turned over the handout and answered the comprehension questions. After completing the comprehension questions, students then checked their own answers and wrote their score on the record sheet. After all students recorded their comprehension scores, the instructor collected the timed reading record sheets. These record sheets were distributed and collected each time a timed reading was given. After the 10-week treatment period, data from the participants were collected. These data included reading times for the 10 texts and the accompanying comprehension scores.

Results and Data Analysis

Table 1 shows the results of the vocabulary test. Treatment Group 1 had the largest mean score, followed by Treatment Group 2 and the control group. The three groups are comparable in the terms of receptive vocabulary knowledge although Treatment Group 1 had a slight advantage over the other two groups.

Table 1. Receptive Vocabulary Knowledge ($N = 150$)

Treatment Group	<i>M</i>	<i>SD</i>
Group 1 ($n = 61$)	93.54	6.47
Group 2 ($n = 52$)	85.73	11.11
Control ($n = 37$)	85.54	11.26

Note. The maximum score for the vocabulary test was 108.

In addition to the receptive vocabulary test, a prestudy reading test was also administered. The reading pretest consisted of a 400-word text followed by 10 comprehension questions. As shown in Table 2, Treatment Groups 1 and 2 had comparable average reading speeds of 113.63 wpm and 112.08 wpm. The control group had the lowest average reading speed of 98.16 wpm. A one-way ANOVA analysis was conducted using IBM SPSS Statistics Version 20.0 to compare the three groups of students: the two treatment groups (200-word texts and 400-word texts) and the control group. There was no significant difference among the groups in terms of the prereading times $F(2, 149) = 1.980, p > .05$. In addition, there was no significant difference in their comprehension scores $F(2, 149) = 2.783, p > .05$. In other words, the reading speeds and comprehension scores were comparable at the beginning of the study.

Table 2. Pretest Reading Rates and Comprehension Scores ($N = 150$)

Treatment Group	Reading Rate (wpm)		Comprehension Score	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Group 1 ($n = 61$)	113.63	28.55	7.43	1.64
Group 2 ($n = 52$)	112.08	54.84	6.79	1.90
Control ($n = 37$)	98.16	25.59	7.57	1.63

As shown in Table 3, the reading speeds of all three groups (measured in wpm) improved during the semester. Treatment Group 1 (400-word texts) saw the largest gain in fluency of 37.94 wpm (33.39%), and Treatment Group 2 (200-word texts) saw a gain of 14.87 wpm (13.32%). Although the intention was to increase reading fluency while maintaining comprehension, there were also modest improvements in comprehension scores. The comprehension scores of Treatment Group 1 increased by 11.44% and the scores of Treatment Group 2 improved by 11.34%. The control group showed a slight improvement in reading fluency of 5.67 wpm (5.79%) while reading comprehension decreased by 1.85%.

A one-way repeated measures ANOVA was conducted to compare the reading speeds of each of the three groups on the pretest and posttest. The results show that reading speed was significantly affected by the treatment, $F(1, 149) = 59.616, p < .05$.

Discussion

The present study was designed to investigate the influence of timed readings of different lengths on reading fluency and comprehension. The results of this study show that there is a significant effect on reading speed and reading comprehension when text lengths vary. The largest gain in reading speed of 37.94 wpm (33.39%) was made by Treatment Group 1, which read the 400-word texts. A modest gain in reading speed of 14.87 wpm (13.32%) was made by Treatment Group 2, which read the 200-

Table 3. Changes in Reading Fluency and Comprehension Scores ($N = 150$)

Treatment Group	Pretest (wpm)	Posttest (wpm)	Change (wpm)	Pretest score	Posttest score	Change (%)
Group 1 ($n = 61$)	113.63	151.57	37.94 (33.39%)	7.43	8.28	11.44%
Group 2 ($n = 53$)	112.08	127.01	14.87 (13.32%)	6.79	7.56	11.34%
Control ($n = 36$)	98.16	103.84	5.67 (5.79%)	7.57	7.43	-1.85%

Note. The maximum score for the comprehension tests was 10.

word texts. This suggests that the 400-word texts were more effective than the 200-word texts in increasing reading speed. The control group also improved their reading speed 5.67 wpm (5.79%) but it is unclear precisely why this occurred. It is possible that this increase can be attributed to coursework during the study.

Although the intention of timed reading practice is to improve reading fluency while maintaining an acceptable level of reading comprehension, both treatment groups saw modest gains in comprehension scores. Treatment Group 1 improved by 11.44% while Treatment Group 2 improved by 11.34%. On the other hand, the comprehension scores of the control group decreased by 1.85%. As a result, it can be said that timed reading practice may have a positive influence on reading comprehension. However, it appears that text length does not significantly influence reading comprehension.

One potential confounding factor of this study is the practice effect (see Macalister, 2010). In addition to the pretest and posttest, Treatment Group 1 and Treatment Group 2 read eight texts. This repeated practice may have resulted in these groups outperforming the control group on the posttest. Similarly, Treatment Group 1 may have had an advantage over Treatment Group 2 on the posttest since Treatment Group 1 read 400-word texts while Treatment Group 2 read 200-word texts. Another limitation of the study was that reading times were self-reported by the students, which may have resulted in measurement errors. Although the focus of the study was on reading fluency and not on reading comprehension, some students found it difficult not to refer to the text while answering the comprehension questions.

Conclusion

Within L2 reading pedagogy, one of the main objectives is to improve learners' ability to read with ease and accuracy. The development of reading fluency is considered to be an important

part of L2 reading programs that emphasize students' overall reading skills. Enhancing reading fluency can be accomplished through exercises that can target parameters such as cognitive velocity, automaticity, accuracy, and reading rate. Timed reading is one of many exercises that can help learners become better readers, and should be considered as part of a repertoire of activities (e.g., intensive and extensive reading, comprehension exercises, discussions, etc.) that promote reading skills and strategies. With this in mind, this study attempted to determine whether or not text length has an effect on reading fluency and comprehension.

This investigation on the influence of text length of timed reading texts has resulted in a statistically significant effect on reading fluency gains over a period of 10 weeks. The longer texts of 400 words in length led to gains in fluency that more than doubled the fluency rate of those participants reading 200-word texts. Interestingly, the length of the texts did not have a significant impact on changes in comprehension gains between the two treatment groups as both experimental groups experienced similar gains in reading comprehension. Based on the findings from this study, there seem to be several promising directions for future research. In the current study, the control group completed only the pretest and posttest. In a future study, it may be more appropriate to have an additional control group, which completes all the readings without time limits. This may provide insights into the benefits (reading fluency and reading comprehension) of timed reading versus regular reading. In addition, it may be beneficial to add a delayed posttreatment task to the research design. This would help determine if the extent to which the gains made in reading fluency are maintained in the long term.

In conclusion, this study has found a promising area of research for the ongoing improvement of EFL reading materials as a means to facilitate gains in reading fluency while maintain-

ing comprehension. Continued investigations in text length and reading fluency should reveal promising results with regards to processing strategies and reading development.

Bio Data

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Appendix A

Auckland - City of Sails (400 Word Version)

Auckland is the biggest city in New Zealand with a population of more than a million, which means that a quarter of all New Zealanders live there. As well as having a large population by New Zealand standards, it is also large in area. Greater Auckland covers 6,232 square miles, making it a very large city by world standards. In fact, Auckland is made up of a number of smaller cities which all join together.

Auckland is built around two beautiful harbours and everywhere you go in Auckland you will see water. On a fine day, you will also see hundreds of boats sailing on the water and for this reason, Auckland is known as 'The City of Sails'. The city sits on seven hills which were formed 50,000 years ago by volcanic activity. At the same time, many islands were formed in the harbour. The most famous one is Rangitoto, which you can see from all over Auckland.

Maori have lived in Auckland for 1000 years, and today Auckland has the largest population of Maori in New Zealand. In addition, many Pacific Islanders have moved to Auckland. Auckland now has the largest population of Pacific Islanders of any city in the world. More recently, Auckland has attracted people from Asia and other countries. These influences make Auckland a truly multi-cultural city.

Auckland has many interesting things to see. The main business and shopping district is Queen Street where you can buy anything you want. The entertainment district is also on Queen Street. You can go to a show or a film, and then to a restaurant, club or bar. There is a big visitor's centre, which is a good place to start a tour of Auckland.

At the top of Queen Street you will find Karangahape Road. It is known as K Road and is full of small shops and colourful markets with cheap produce. You will see people, food and products from many countries of the world. On the other hand, Parnell is the expensive place to shop. For the young and fashionable, Ponsonby is the up-market place for restaurants, clubs and night life.

You can drive around the harbour which has many great places to swim and small villages with restaurants and shops. Auckland is a green city with twenty two parks. With its mild weather throughout the year, locals and visitors can enjoy an outdoor life.

Appendix B

Auckland - City of Sails (200 Word Version)

Auckland is the biggest city in New Zealand with a population of more than a million, which means that a quarter of all New Zealanders live there. As well as having a large population by New Zealand standards, it is also large in area. Greater Auckland covers 6,232 square miles, making it a very large city by world standards. In fact, Auckland is made up of a number of smaller cities which all join together.

Auckland is built around two beautiful harbours and everywhere you go in Auckland you will see water. On a fine day, you will also see hundreds of boats sailing on the water and for this reason, Auckland is known as 'The City of Sails'. The city sits on seven hills which were formed 50,000 years ago by volcanic activity. At the same time, many islands were formed in the harbour. The most famous one is Rangitoto, which you can see from all over Auckland.

Maori have lived in Auckland for 1000 years, and today Auckland has the largest population of Maori in New Zealand. In addition, many Pacific Islanders have moved to Auckland. Auckland now has the largest population of Pacific Islanders of any city

Appendix C

New Zealand Speed Readings for ESL Learners - Book One (400 words)

Timed Reading Instructions for Students

When the teacher says "Go!" begin reading as fast as you can. Don't use your finger or a pen to point to the words as you read. When you finish reading the passage, look up and note the next time that has not been crossed off on the board. Write this in the space for time on your graph sheet. Turn over the page and answer the questions from memory without looking back at the passage. After you have finished answering the questions, check your answers using the answer key and record the score on your graph. Then look up. Do not write on the reading passage and question sheet. Your teacher will check your progress and collect your passage if you have finished.

「始め」という指示があったら、できるだけ早く文章を読んでください。指やペンで文字を追いつつ読むのは、やめてください。読み終わったら、黒板を見てください。最後に線で消されている時間の、次に書いてある時間を確認してください。その時間を、グラフシートの時間の枠に書き込んでください。ページをめくって質問に答えてください。ただし、前のページに戻って文章を見ることはできません。質問に全部答えたら、答え合わせをして、点数をシートに書き込んでください。以上の作業が終わったら、前を向いてください。冊子(reading passage and question sheet)には何も書き込まないでください。先生が進み具合を確認して、終了していれば文章を集めます。

New Zealand Speed Readings for ESL Learners: Book One Progress Graph for a 400 Word Passage

Put a circle in one of the boxes to show your reading time and write your score in the area under the reading number. 数字の下にあなたの点数を書いてください。文章を読むのに要した時間(分)を示す個所にひとつだけ○をつけてください。

Time											wpm
2:00											200
2:10											185
2:20											171
2:30											160
2:40											150
2:50											141
3:00											133
3:10											126
3:20											120
3:30											114
3:40											109
3:50											104
4:00											100
4:10											96
4:20											92
4:30											89
4:40											86
4:50											83
5:00											80
5:10											77
5:20											75
5:30											73
5:40											71
5:50											69
6:00											67
6:10											65
6:20											63
6:30											62
6:40											60
6:50											59
7:00											57
Reading #	1	2	3	4	5	6	7	8	9	10	
Score on the questions											